

April 15, 2008

The Honorable Susan Golding, Chair
MLPA Initiative Blue Ribbon Task Force
c/o California Resources Agency
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

RE: Quality of SAT Modeling results

Dear Mayor Golding and BRTF Members:

About a month ago, I wrote to you about issues concerning the quality of the information provided by the SAT on the modeling results. I am happy to say that some of my concerns were addressed by the SAT at their meeting on April 3, 2008. But, some issues were not addressed and I felt it is important for you to be aware of them. If between then and next week, the SAT incorporates discussion of these issues, more power to them. I encourage you to ask about the open issues at your upcoming meeting.

The good news:

The summary modeling report of April 3 provided some general conclusions about the effects of MPAs, such as

Increasing the size or decreasing the spacing of MPAs generally leads to an increase in the conservation value of the network.

When fishing effort outside MPAs is so high that populations become unsustainable, MPAs can produce a win-win situation in which both conservation value and economic return are increased.

The section was labeled "Model outputs" on page 4-5 of the draft. I think section provides the useful information for this round given the approximations at every level in habitat definition, habitat-species affinities, and stock-recruit estimates and relationships.

The report does not talk about "clearly inferior" proposals, an improvement from January. Yet most of the report is devoted to charts of proposal comparisons. At the meeting, some SAT members still talked about replacing size and spacing guidelines which is only a dream for this region – an example of faith based science.

The report on page 2-3 of the April 3 draft discussed issues and limitations of the habitat model given that 30% of shallow habitat in the region is not mapped. I think you should regard that as a warning label that the results are only an approximation at best. The SAT decided on a way to plug in values in those areas which is perhaps better than not including it at all. (There was a comment that I suggested the solution

of plugging in 50/50 hard and soft into the unknown cells, but I never intended that.) I prefer using the 20-meter isobath measurements which at least would be consistent with how the SAT evaluates shallow habitat in the proposals. The important message is that if the habitat is unknown, the ranking of proposals is unknown.

Uncertain news:

There was no quality assurance statement or report. John Ugoretz said that a few problems had been found but they did not affect the results. That is good news but it is not a substitute for a QA report. One concern is since the Edom habitat file was regenerated, it needs to be checked carefully. It is especially important with Edom because it uses % habitat type to model the populations.

No one could explain why the results were different between the two models. Yet, one could investigate the subject since the models differ in MPA representation, habitat model, and the way they aggregate biomass in cells that have suitable habitat.

Omissions:

Benchmarks

The reason for using model outputs to predict something that can be confirmed with known observations is that it would give some confidence that the models will help predict new scenarios that cannot be confirmed. There is no discussion of the importance of doing this in the SAT report, but SAT members casually discussed the possibility of comparing model outputs on distribution of catch and effort to the distributions from Ecotrust surveys. That would be one of three types of benchmarks that I suggested, and there should be a commitment to do them.

Nearshore fisheries mix

The SAT chose a species mix including California Halibut. Including halibut tends to homogenize the results since they are modeled to be everywhere there is sand and it is a species that is not "most likely to benefit" from MPAs.

The SAT did not respond to my request to also do separate model runs on a mix of nearshore fishery management species including ones that are susceptible to fishing before maturity. Also, in a mixed species fishery, there can be local depletion near ports before the total TAC is reached. Because of this nearshore fishery omission, I think the sustainability and "insurance" value of MPAs is not adequately reported by the SAT. A recent TAC memo from John Ugoretz reinforces the need: "Comprehensive fishery management under the NFMP is designed to be accomplished through a combination of limits on total fishing mortality in combination with a network of MPAs." This statement cries out for analysis using the models.

In the second MPA round, I did a quick model using Edom of a fish susceptible to fishing mortality before maturity:

Option	Spawning biomass	
	Black Rockfish	Rockfish (species susceptible to catch before maturity)
No MPAs	8.2	1.7
Small MPA network	9.2	4.8
Large MPA network	10.3	7.4
Unfished	24	24

Modeled assuming fishing mortality $F = .05$

As can be seen above MPA networks, especially ones that meet the preferred size dimensions of the SAT, will directly help species that are harmed in a multi-species fishery.

Farallones

The contribution of the Farallon subregion to sustainability, biomass, and catch are underestimated in the models. Since the MPA proposals are the same in this area, one might say it doesn't matter. But, if there is a goal to understand sustainability and MPA impacts, then the Farallones should be modeled more accurately.

Inform monitoring plans

There is no mention in the report of how the modeling program can inform monitoring. One conclusion is that monitoring should try to provide fishery independent measures of stock and recruitment. Also, test and control areas need much better habitat descriptions than what is now available in the GIS system.

I think the SAT model report, based on the April 3 Draft, would be improved by addressing the limitations discussed here and should do a better job modeling the insurance value of MPAs for fish stocks that are poorly known and ones that are susceptible to pre-mature catch in a multi-species fishery.

I urge you to ask questions and consider the SAT responses.

Sincerely,

Rick Johnson
Inverness, CA